District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NRM2012240751
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-8753
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.20592046 Longitude ,-104.0660578

(NAD 83 in decimal degrees to 5 decimal places)

Site Name FIDDLE FEE 24 28 23 WD #003H	Site Type Oil & Gas
Date Release Discovered 4/28/2020	API# *(if applicable) 30-015-45035*

Unit Letter	Section	Township	Range	County
E	23	24S	28E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 12.78	Volume Recovered (bbls) 10
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A pipe failure at the custody transfer meter resulted in the release of approximately 13 bbl of produced water onto the adjacent San Mateo and Oryx ROWs. Standing fluid was recovered and Marathon will continue to work with the line representatives through the remediation process.

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Release flowed off of the pad

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Yes, by MOC (Melodie Sanjari) via email to NMOCD District II on 4/29/2020

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/30/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Ramona Marcus Date: 5/1/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
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Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	120 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
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Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: *Melodie Sanjari* Date: 6/23/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

Incident ID	NRM2012240751
District RP	
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Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[X] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 6/23/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

June 22, 2020 Vertex Project #: 20E-00140-004

Spill Closure Report: Fiddle Fee 24 28 23 WD #003H
Unit E, Section 23, Township 24 South, Range 28 East
County: Eddy
API: 30-015-45035
Tracking Number: NRM2012240751

Prepared For: Marathon Oil Permian, LLC
4111 South Tidwell Road
Carlsbad, New Mexico 88220

New Mexico Oil Conservation Division – District 2 – Artesia
811 South First Street
Artesia, New Mexico 88210

Marathon Oil Permian, LLC (Marathon) retained Vertex Resource Services Inc. (Vertex) to conduct spill assessment and remediation for a produced water release that occurred at Fiddle Fee 24 28 23 WD #003H, API 30-015-45035 (hereafter referred to as "Fiddle Fee"). Marathon provided immediate notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 2 on April 29, 2020, via email. The initial C-141 Release Notification was submitted on April 30, 2020 (Attachment 1). The NM OCD tracking number assigned to this incident is NRM2012240751.

This letter provides a description of the spill assessment and remediation activities, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NM OCD for closure of this release.

Incident Description

On April 28, 2020, a release occurred at Marathon's Fiddle Fee site due to a pipe failure at a custody transfer meter. This incident resulted in the release of approximately 13 barrels (bbls) of produced water onto the adjacent San Mateo and Oryx rights of way (ROW). A vac truck dispatched to the site recovered 10 bbls of standing fluid for disposal off-site. The spill flowed off-pad onto the adjacent ROW, but no produced water was released into sensitive areas or waterways.

Site Characterization

The release at Fiddle Fee occurred on privately-owned land, N 32.20592046, W 104.0660578, approximately 15 miles southeast of Carlsbad, New Mexico. The legal description for the site is Unit E, Section 23, Township 24 South, Range 28 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and farmland. An aerial photograph and site schematic are included in Attachment 2.

Fiddle Fee is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production, and storage. The following sections specifically describe the release location on the east side of the wellpad, east of the tank battery, and the area where the wellpad is situated.

The surrounding landscape is associated with loamy plains and farmland of statewide importance. The climate is semi-arid, with average annual precipitation ranging between 10 and 25 inches. Historically, the plant community had a grassland aspect, dominated by grasses with shrubs and half-shrubs sparsely but evenly distributed. The dominant grass species were tobosa, black grama and blue grama; grass cover was uniform. Altered hydrology due to farming and over-grazing has resulted in patchier grass cover with large areas of bare ground and the presence of physical crusts on the soil surface (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted wellpad; however, vegetation is encouraged on the ROW.

The *Geological Map of New Mexico* indicates the surface geology at Fiddle Fee is comprised of a mix of Qoa and Pr – older alluvial deposits of upland plains and piedmont areas, and the calcic soils and eolian cover sediments of the High Plains region with the siltstone, gypsum, sandstone and dolomite of the Rustler Formation (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as Russler loam, characterized by loam and clay loam over gypsiferous material. It tends to be well-drained with high runoff and low available water storage in the soil profile. This type of soil is moderately to strongly saline (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is medium potential for karst geology to be present near Fiddle Fee (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately a 1,200 feet northwest of Fiddle Fee. The Pecos River is located approximately 2 miles east of the release site (United States Fish and Wildlife Service, 2020). At Fiddle Fee, there are no continuously flowing watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to Fiddle Fee is a 2018 New Mexico Office of the State Engineer (NM OSE) well, located approximately 0.2 miles north of the site, with a depth to groundwater of 370 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Depth to groundwater at a second NM OSE well from 2017, located approximately 0.4 miles west of Fiddle Fee shows a depth to groundwater of 120 feet bgs (New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on data included in the closure criteria determination worksheet, the release at Fiddle Fee is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined to be associated with constituent concentration limits based on depth to groundwater. However, the location of the spill

off-lease in a ROW stipulates that reclamation of the site following remediation activities is warranted. To meet the reclamation requirements as outlined in 19.15.29.13 NMAC, the below constituent concentration limits were used.

Table 1. Reclamation Criteria for Soils Impacted by a Release Off-Lease

Depth to Groundwater	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH[1] (GRO + DRO + MRO)	100 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

[1]Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
[2]Benzene, toluene, ethylbenzene and xylenes (BTEX)

Remedial Actions

On April 28, 2020, immediately following the spill event at Fiddle Fee, a hydrovacuum truck was dispatched to recover free liquids, and an emergency scrape of the site was completed to remove visibly wet and contaminated soil to a depth of approximately 0.5 feet bgs.

On June 2, 2020, Vertex provided 48-hour notification of confirmatory sampling to the NM OCD (Attachment 4), as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC. Excavation of impacted soils was conducted between June 3 and 4, 2020, with a Vertex representative on-site to guide the excavation using field screening methods. Site activities are documented in the Daily Field Reports (DFRs) included in Attachment 5. The final horizontal and vertical extents of the release area are presented on Figure 1 (Attachment 2). As remediation activities were completed on June 4, 2020, Vertex collected a total of 10 five-point composite confirmatory samples from the base and side walls of the excavation, at depths ranging between ground surface and 3 feet bgs. Each composite sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NM OCD approval. The composite samples were placed into laboratory-provided containers, preserved on ice and submitted to a National Environmental Laboratory Accreditation Program-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sampling analytical data are summarized in Table 2 (Attachment 6). Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmatory sample locations are presented on Figure 1 (Attachment 2). Relevant equipment and prominent features/reference points at the site were mapped as well.

Background Chloride

Based on site research regarding historical agricultural use of the area where Fiddle Fee is located, as well as information from the NRCS Web Soil Survey report included in Attachment 3, Vertex determined the potential existed for background chlorides to exceed reclamation criteria as outlined in Table 1. At the time of confirmatory sampling, background samples

were also collected and held for analysis pending final confirmatory sample laboratory results. These background samples were from a single background borehole location, selected outside of the release footprint per guidance provided in the NM OCD document *Procedures for Implementation of the Spill Rule* (19.15.29 NMAC; Energy, Minerals and Natural Resources Department, 2019), and collected at one-foot intervals, to the final depth of excavation.

Confirmatory sample laboratory results indicated several confirmatory samples, collected from 1 and 2 feet bgs, exceeded the required reclamation criteria for the Fiddle Fee site. To determine if these exceedances were the result of higher than normal background chloride levels, the background samples from corresponding depths were submitted for laboratory analysis. The laboratory analysis indicated existing background chloride levels were higher than standard reclamation criteria. The background sample laboratory data are included in Table 2 (Attachment 6).

Closure Request

Vertex recommends no additional remediation action to address the release at Fiddle Fee. Laboratory analyses of the final confirmatory samples showed constituent of concern concentration levels below existing background chloride levels, in the area of the release, and in compliance with reclamation requirements outlined in 19.15.29.13 NMAC. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

The excavation was backfilled with non-waste-containing, uncontaminated earthen material, sourced locally, and placed to meet the site's existing grade to prevent ponding of water and erosion. The remediation area will be re-seeded with an approved seed mix at the appropriate time of year to take advantage of seasonal rains, in order to aid in the re-establishment of vegetation over the impacted area.

Vertex requests that this incident (NRM2012240751) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC and reclamation requirements set forth in Subsection D of 19.15.29.13 NMAC have been met. Marathon certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NM OCD requirements to obtain closure on the April 28, 2020, release at Fiddle Fee 24 28 23 WD #003H.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 505.506.0040 or ngordon@vertex.ca.

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

Attachment 1. NM OCD C-141 Report
Attachment 2. Site Schematic and Confirmatory Sampling Locations
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
Attachment 5. Daily Field Report(s) with Photographs
Attachment 6. Confirmatory Sampling Laboratory Result Table
Attachment 7. Laboratory Data Reports/Chain of Custody Forms

References

New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Energy, Minerals and Natural Resources Department. (2019). *Procedures for Implementation of the Spill Rule.* Santa Fe, New Mexico.

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2020). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html.

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2020). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of the Interior, Bureau of Land Management. (2020). *New Mexico Cave/Karsts*. Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico.

United States Department of the Interior, United States Geological Survey. (2020). *Groundwater for New Mexico: Water Levels*. Retrieved from https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?.

United States Fish and Wildlife Service. (2020). *National Wetlands Inventory*. Retrieved from https://www.fws.gov/wetlands/data/Mapper.html.

Limitations

This report has been prepared for the sole benefit of Marathon Oil Permian, LLC (Marathon). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Marathon. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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Revised August 24, 2018
Submit to appropriate OCD District office

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Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-8753
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.20592046 Longitude ,-104.0660578

(NAD 83 in decimal degrees to 5 decimal places)

Site Name FIDDLE FEE 24 28 23 WD #003H	Site Type Oil & Gas
Date Release Discovered 4/28/2020	API# *(if applicable) 30-015-45035*

Unit Letter	Section	Township	Range	County
E	23	24S	28E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 12.78	Volume Recovered (bbls) 10
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A pipe failure at the custody transfer meter resulted in the release of approximately 13 bbl of produced water onto the adjacent San Mateo and Oryx ROWs. Standing fluid was recovered and Marathon will continue to work with the line representatives through the remediation process.

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
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Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Release flowed off of the pad

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Yes, by MOC (Melodie Sanjari) via email to NMOCD District II on 4/29/2020

Initial Response

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☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
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Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 4/30/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Ramona Marcus Date: 5/1/2020

NRM2012240751

Spill Calculation Tool

Marathon Oil

Standing Liquid Inputs:

	Length (ft.)	Width (ft.)	Avg. Liquid Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1					0.00	0.00	0.00
Rectangle Area #2					0.00	0.00	0.00
Rectangle Area #3					0.00	0.00	0.00
Rectangle Area #4					0.00	0.00	0.00
Rectangle Area #5					0.00	0.00	0.00
Rectangle Area #6					0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Liquid Volume:	**0.00**	**0.00**	**0.00**

Saturated Soil Inputs: Soil Type: Gravel Loam

	Length (ft.)	Width (ft.)	Avg. Saturated Depth (in.)	% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Rectangle Area #1		2654	2	0%	11.03	11.03	0.00
Rectangle Area #2	5	8	3	0%	0.25	0.25	0.00
Rectangle Area #3	5	8	3	0%	0.25	0.25	0.00
Rectangle Area #4	10	10	3	0%	0.62	0.62	0.00
Rectangle Area #5	10	10	3	0%	0.62	0.62	0.00
Rectangle Area #6				0%	0.00	0.00	0.00
Rectangle Area #7					0.00	0.00	0.00
Rectangle Area #8					0.00	0.00	0.00
				Saturated Volume	**12.78**	**12.78**	**0.00**

Volume Recovered *and not included in Standing Liquid Inputs* :

% Oil	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)

	Total Volume (bbls)	Water Volume (bbls)	Oil Volume (bbls)
Total Spill Volume (bbls):	**12.78**	**12.78**	**0.00**

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	120 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: *Melodie Sanjari* Date: 6/23/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Cristina Eads Date: 06/23/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012240751
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[x] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[x] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[x] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[x] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 6/23/2020

email: msanjari@marathonoil.com Telephone: 575-988-8753

OCD Only

Received by: Cristina Eads Date: 06/23/2020

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: D E N I E D Date: 09/04/2020

Printed Name: Cristina Eads Title: Environmental Specialist

Duke
Oilfield Services, LLC

PO Box 1253
Lovington, NM 88260
Office (575) 396-0934
Fax (575) 396-0449
Cell (575) 396-6619
Email dukeoilfieldllc@gmail.com

120247

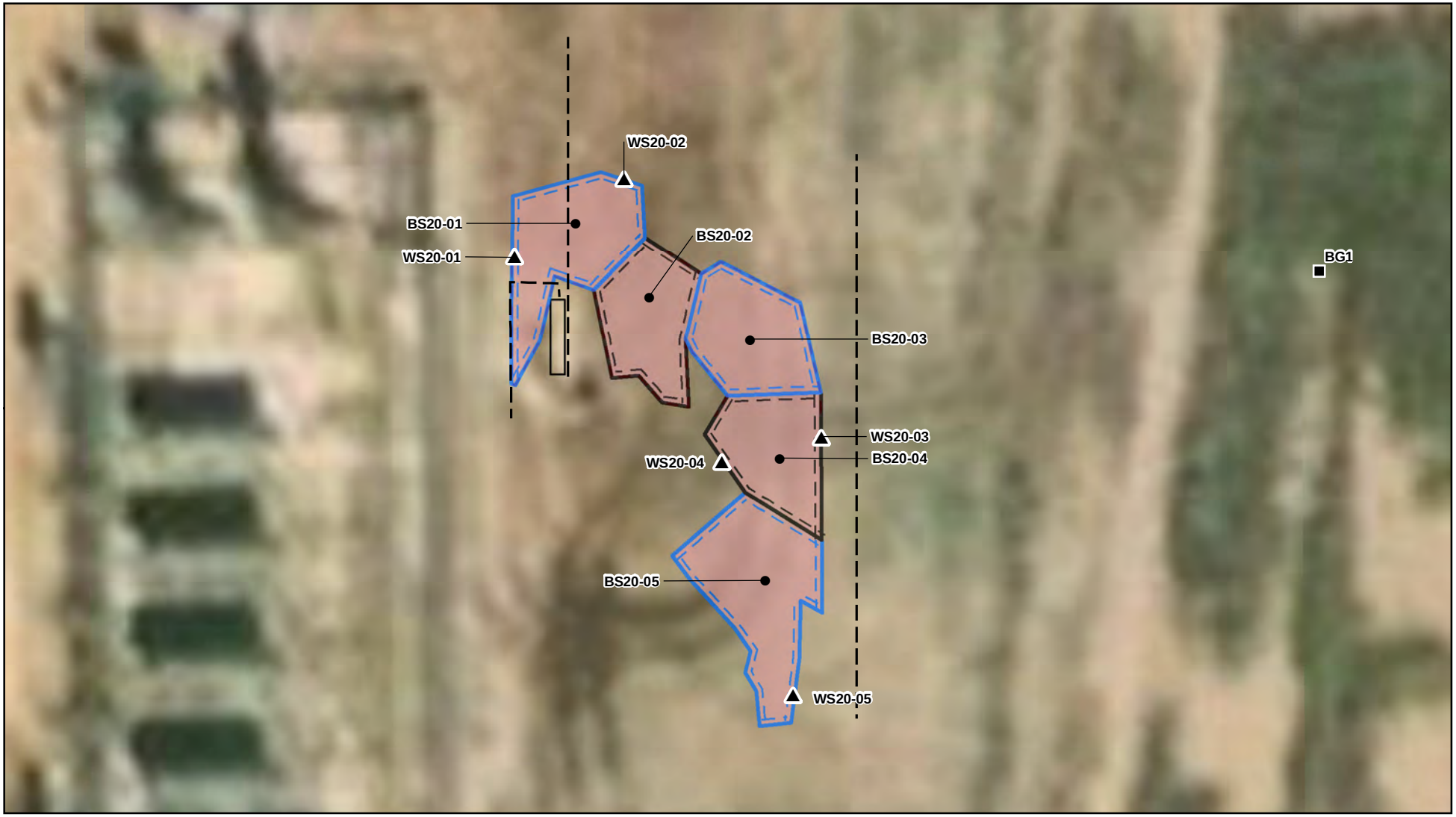
Oil _____
Disposal _____
Salt Water _____
Fresh Water _____

DATE: 4-28-20
COMPANY: Marathon oil
RIG: CC#09797244QQ
LEASE: FIDDLE FEE 3H 4H 7H 8H CTD
ORDERD BY: Fabian Lujan

Description of Service	Hours
haled 10 bbls of waste water to Disposal and washout truck 1.30 hour and half Work In location	

Work done by: David Cervantes Unit #: 87
Accepted:

ATTACHMENT 2



Base Sample (Excavated)
Wall Sample (Excavated)
Background Sample
Approximate Spill Extent
Infrastructure (Existing)
Pipeline
Excavation - 2' depth
Excavation - 3' depth

VERTEX

0 5 10 20 ft

Map Center:
Lat/Long: 32.206105, -104.064875

NAD 1983 UTM Zone 13N
Date: Jun 08/20

N

Site Schematic and Confirmatory Sampling Locations
Fiddle Fee 24 28 23 WD #003H

FIGURE:
1

Marathon Oil

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background image from ESRI, 2018.

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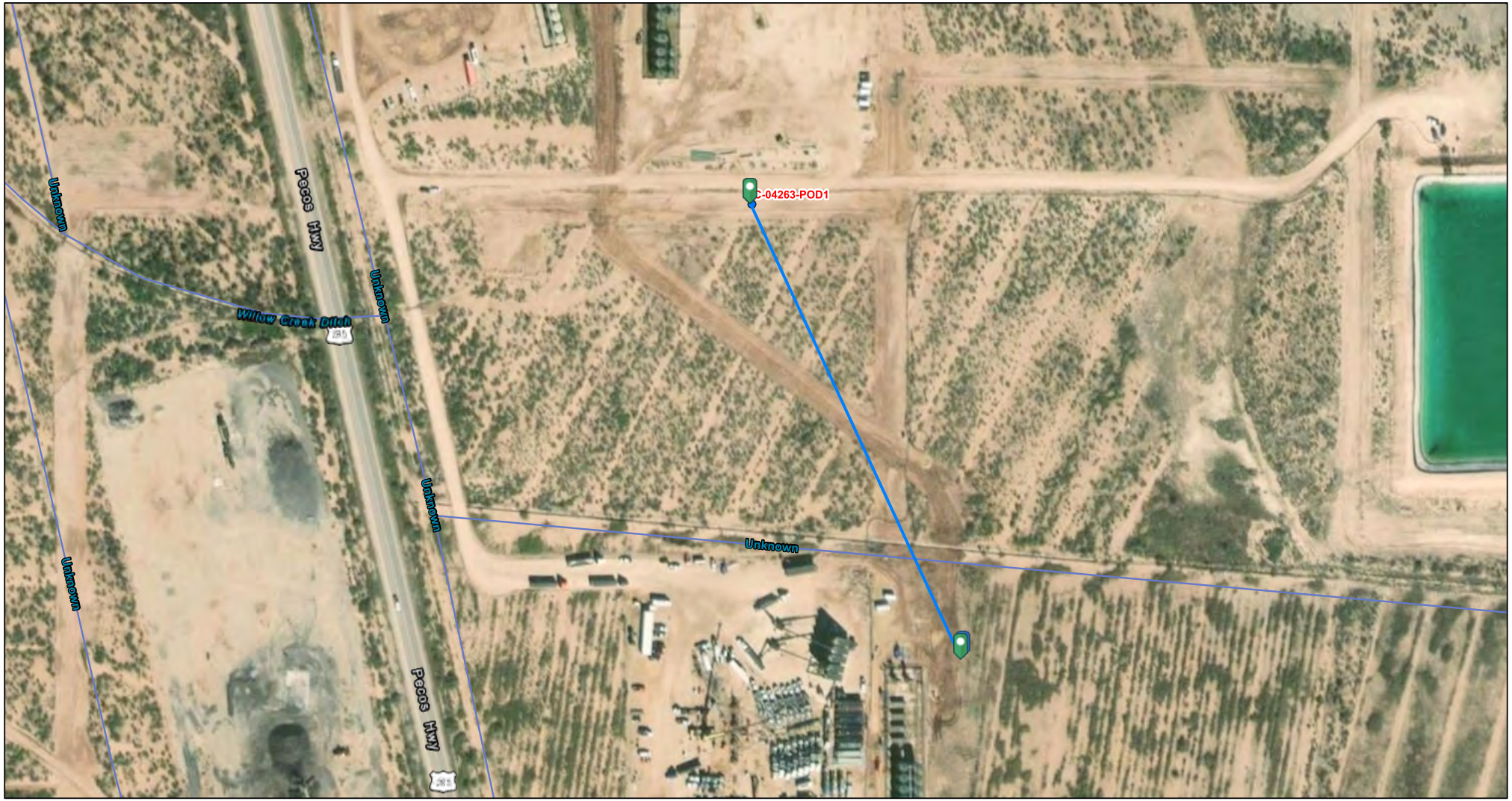
Document Path: G:\1-Projects_US PROJECTS\Marathon\20E-00140004 - Fiddle Fee 24 28 23\Figure 2 Confirmatory Schematic Fiddle Fee 24 28 23.mxd

ATTACHMENT 3

Closure Criteria Worksheet			
Site Name: Fiddle Fee 24 28 23 WD #003H			
Spill Coordinates:		X: 32.206310	Y: -104.064835
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**370**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	10,166	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	3,541	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	6,303	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	6,303	feet
	ii) Within 1000 feet of any fresh water well or spring	6,303	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	4,731	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain		year
NMAC 19.15.29.12 E (Table 1) Closure Criteria			<50' 51-100' >100'

Fiddle Fee 24 28 23 0.16 miles



5/12/2020, 11:04:13 AM

OSE District Boundary

GIS WATERS PODs

Active

Conveyances

Ditch

1:2,257

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▾ Geographic Area: United States ▾ GO

Click to hideNews Bulletins

- **Notice** - The USGS Water Resources Mission Area's priority is to maintain the safety and well-being of our communities, including providing critical situational awareness in times of flooding in all 50 U.S. states and additional territories. Our hydrologic monitoring stations continue to send data in near real-time to NWISWeb, and we are continuing critical water monitoring activities to protect life and property on a case-by-case basis. The health and safety of the public and our employees are our highest priorities, and we continue to follow guidance from the White House, the CDC, and state and local authorities.
- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

USGS 321126104032101 24S.28E.26.23133

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▾ GO

Well Site

DESCRIPTION:
Latitude 32°11'25.8", Longitude 104°03'27.0" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 126 feet
Land surface altitude: 2,944.90 feet above NGVD29.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1978-02-21	2013-01-10	8
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:
Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
NA	C 04263 POD1	3	1	1	23	24S	28E	588026	3563915

Driller License:	1690	**Driller Company:**	VISION RESOURCES, INC		
Driller Name:	JASON MALEY				
Drill Start Date:	09/12/2018	**Drill Finish Date:**	09/13/2018	**Plug Date:**	
Log File Date:	10/04/2018	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	300 GPM
Casing Size:	8.00	**Depth Well:**	390 feet	**Depth Water:**	370 feet

Water Bearing Stratifications:	Top	Bottom	Description
	350	390	Other/Unknown

Casing Perforations:	Top	Bottom
	290	390

Fiddle Fee 24 28 23

Nearest watercourse: Pecos River
Distance: 1.93 miles (10166 ft)

Legend

- Fiddle Fee 24 28 23
- Malaga

U.S. Fish and Wildlife Service

National Wetlands Inventory

Fiddle Fee 24 28 23

May 12, 2020

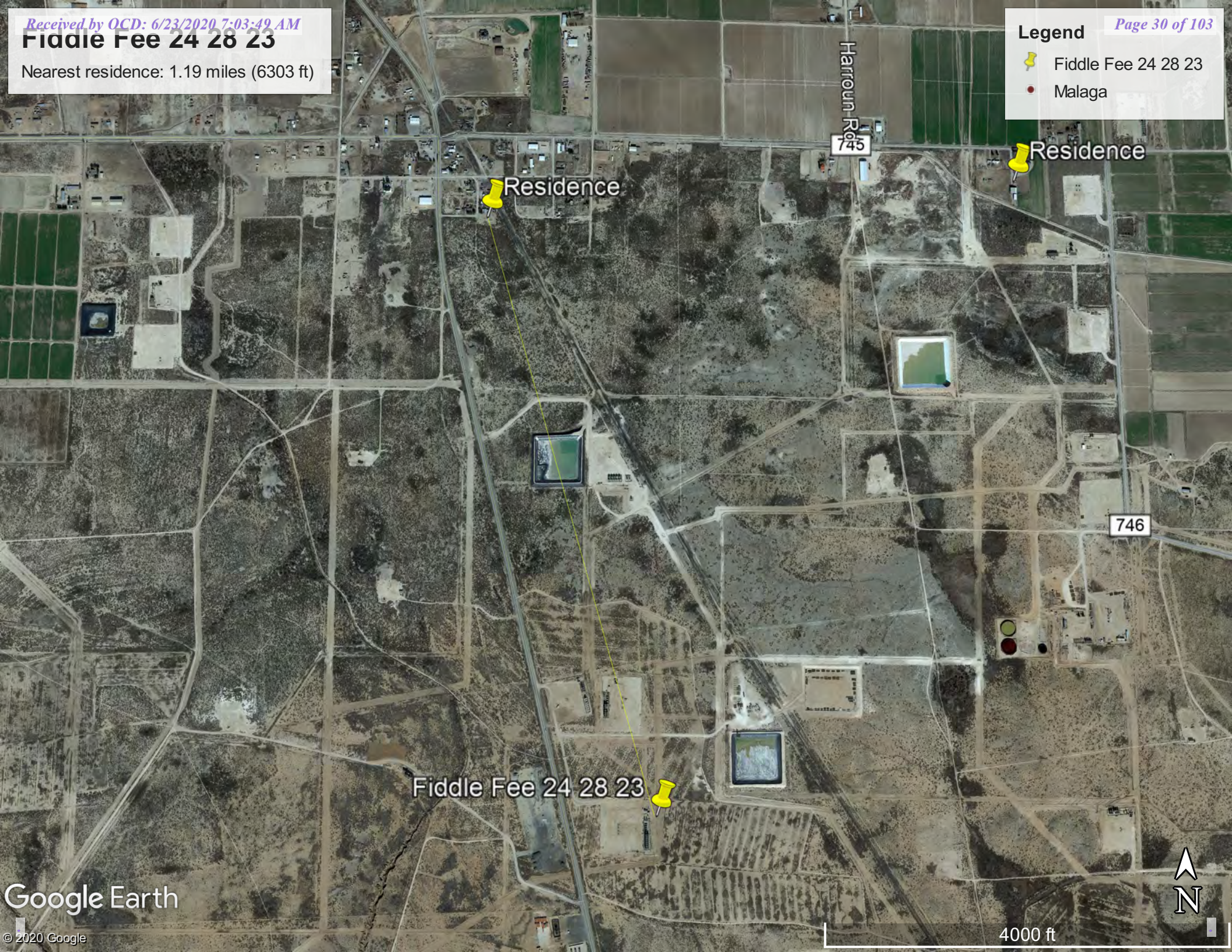
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

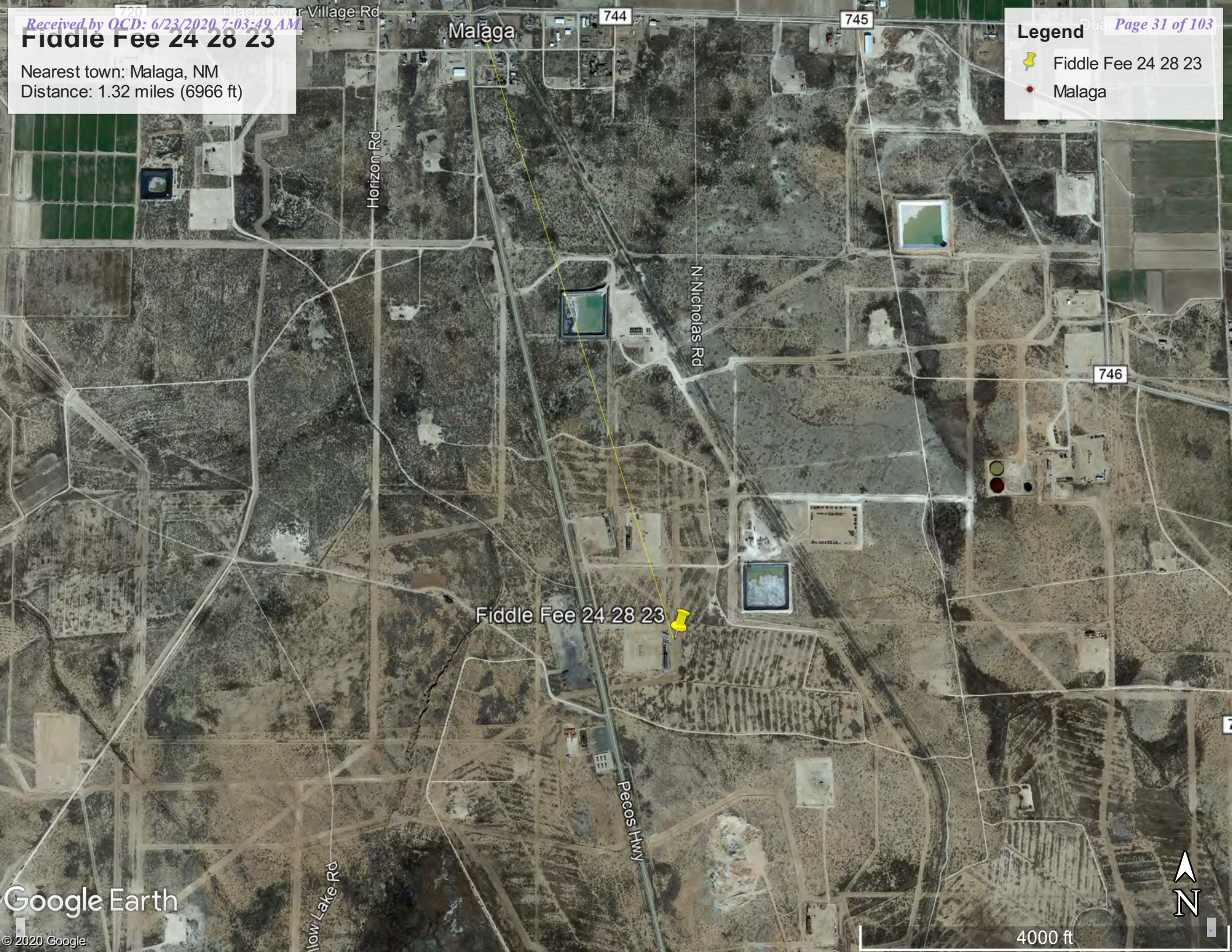
Fiddle Fee 24 28 23

Nearest residence: 1.19 miles (6303 ft)



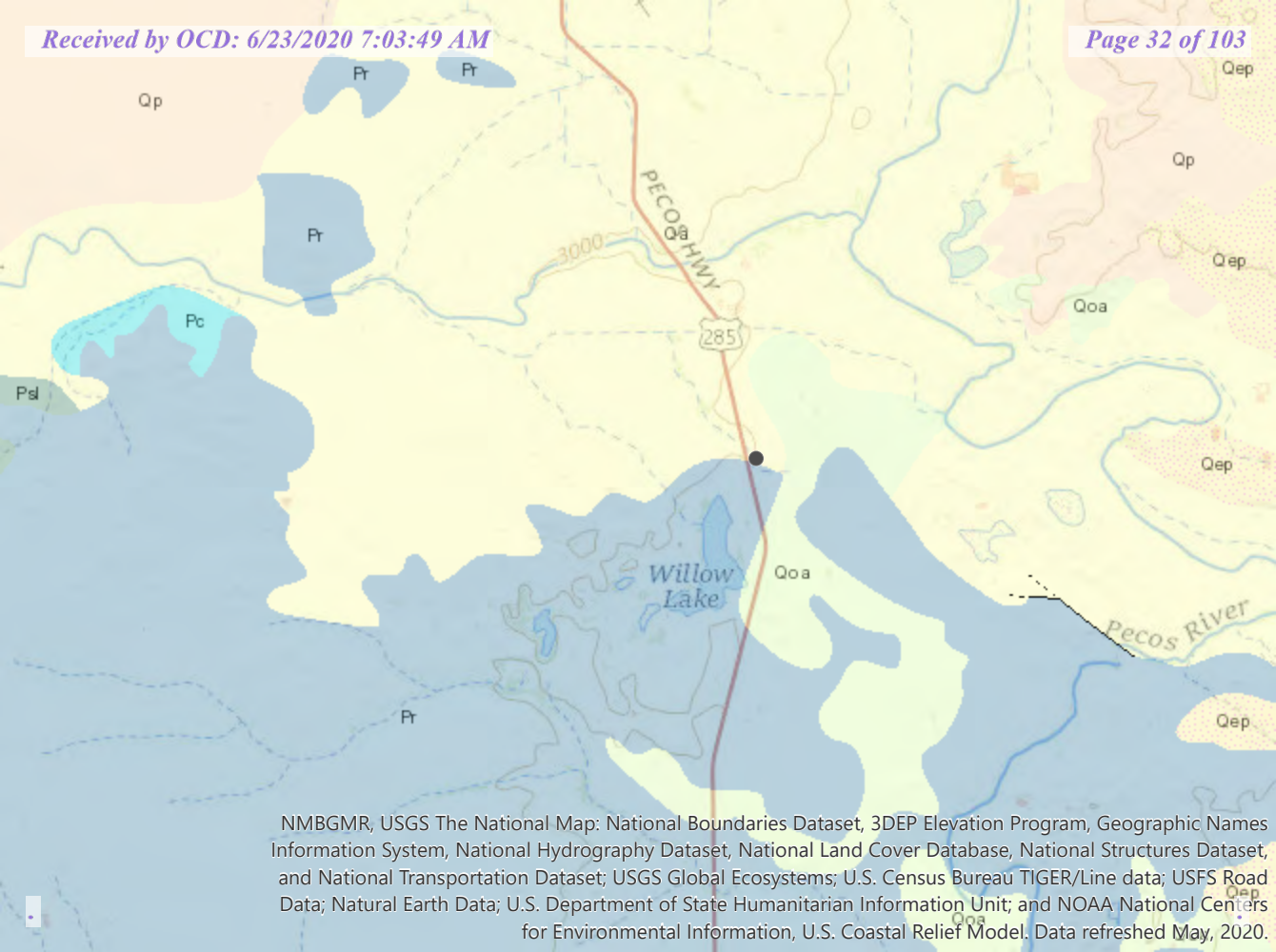
Fiddle Fee 24 28 23

Nearest town: Malaga, NM
Distance: 1.32 miles (6966 ft)

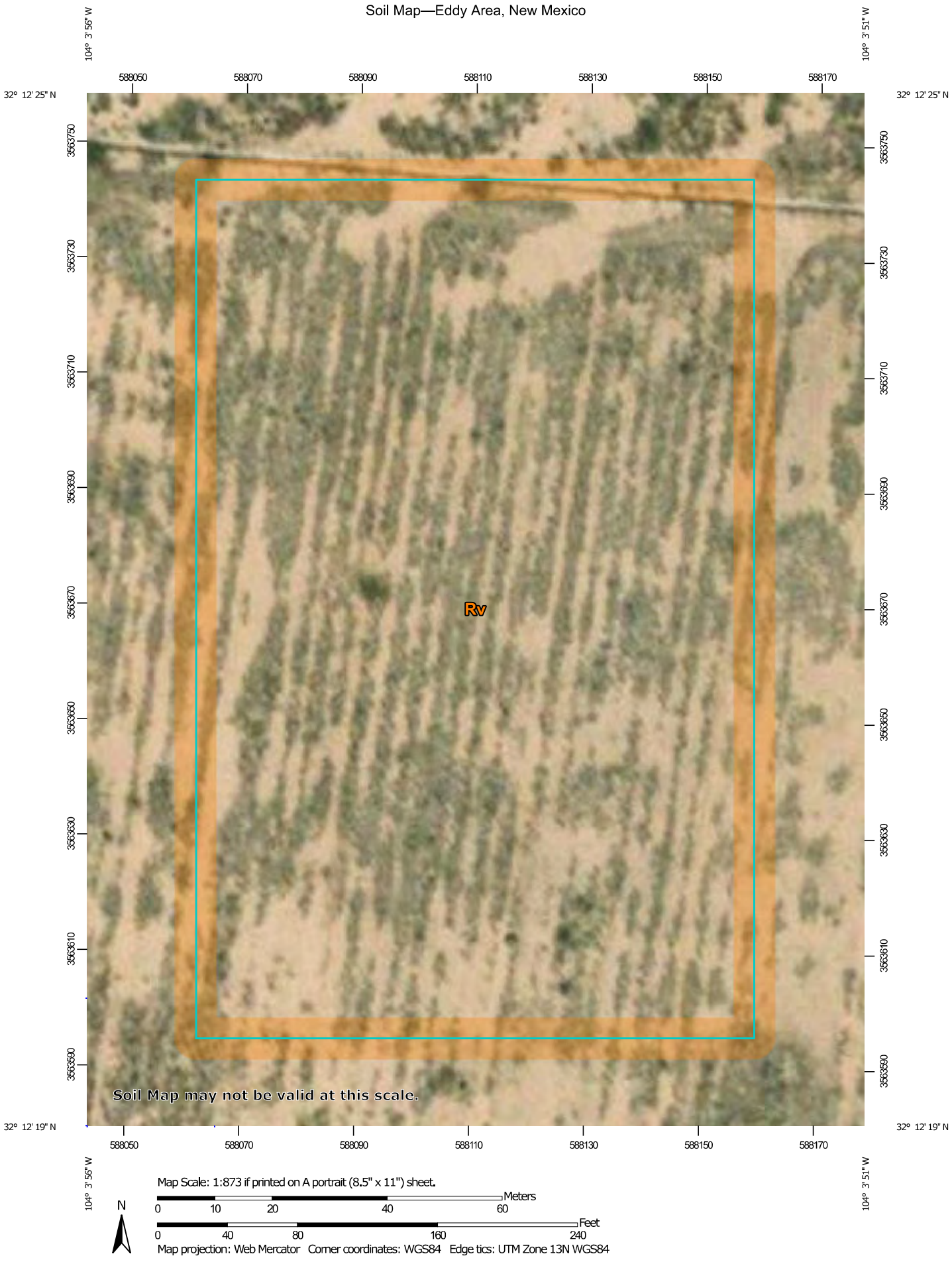


Legend

- Fiddle Fee 24 28 23
- Malaga



NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed May, 2020.


Soil Map—Eddy Area, New Mexico
104° 3' 56" W
104° 3' 51" W
32° 12' 25" N
32° 12' 19" N
588050
588070
588090
588110
588130
588150
588170
3563750
3563730
3563710
3563690
3563670
3563650
3563630
3563610
3563590
Rv
Soil Map may not be valid at this scale.
Map Scale: 1:873 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 10 20 40 60
Feet
0 40 80 160 240
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jun 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Rv	Russler loam, 1 to 3 percent slopes	3.6	100.0%
Totals for Area of Interest		**3.6**	**100.0%**

Eddy Area, New Mexico

Rv—Russler loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5t
Elevation: 1,250 to 5,300 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 200 to 235 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Russler and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russler

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 45 inches: clay loam
H3 - 45 to 60 inches: gypsiferous material

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 47 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, maximum in profile: 40 percent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Minor Components

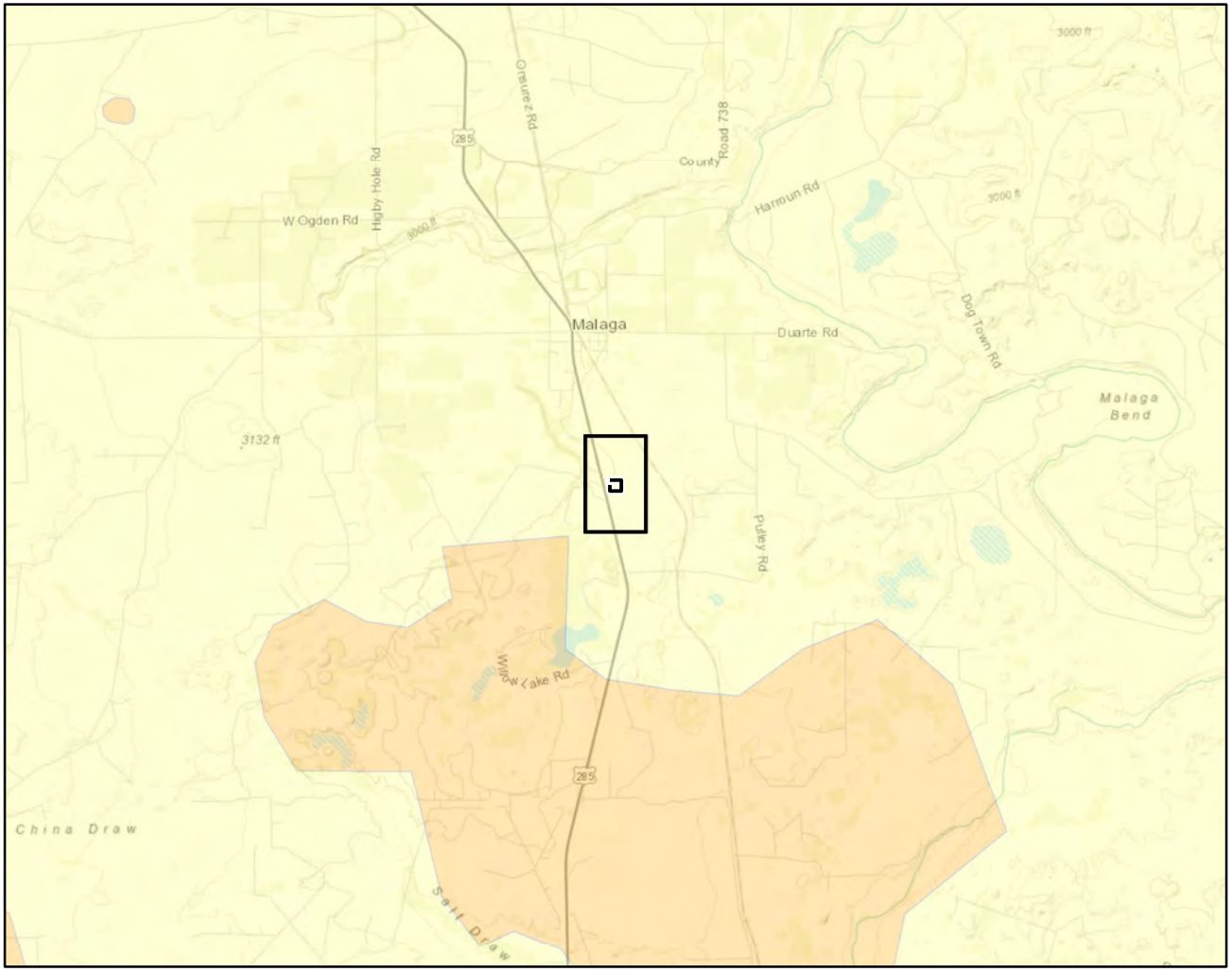
Cottonwood
Percent of map unit: 1 percent
Ecological site: Gyp Upland (R042XC006NM)
Hydric soil rating: No

Reeves
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Reagan
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019



Karst Potential

- Critical
- High
- Medium
- Low

Approximate Site Location

Overview Map

0 0.25 0.5 1 1.5 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.206065, -104.065824

NAD 1983 UTM Zone 13N
Date: May 14/20

N

Karst Potential
Strawberry 7 Fed Com 9H

FIGURE:
X

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 2019; Overview Map: ESRI World Topographic

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Document Path: G:\1-Projects_US PROJECTS\Marathon\20E-00140004 - Fiddle Fee 24 28 23\Figure X Fiddle Fee 24 28 23 Karst Potential.mxd

ATTACHMENT 4

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, June 2, 2020 6:14 PM
To: Natalie Gordon
Subject: Fwd: NRM2012240751: Fiddle Fee 24 28 23 - 48hr Notification of Confirmatory Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Tue, Jun 2, 2020 at 6:13 PM
Subject: NRM2012240751: Fiddle Fee 24 28 23 - 48hr Notification of Confirmatory Sampling
To: Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>, Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>, <msanjari@marathonoil.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled remediation field activities and confirmatory sampling to be conducted at Fiddle Fee 24 28 23 WD #003H for the release that occurred on April 28, 2020, incident tracking # NRM2012240751.

This work will be completed on behalf of Marathon oil Permian.

On Wednesday, June 3, 2020 at approximately 8:00 a.m., Monica Peppin of Vertex will be onsite using field screening methods to guide remediation activities. This work is expected to last several days. Monica will conduct final confirmatory sampling as the remediation activities finish up, beginning on the morning of Friday, June 5, 2020. She can be reached at 575-361-9880. If you need directions to the site, please do not hesitate to contact her. If you have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,
Natalie

Natalie Gordon
Project Manager

Vertex Resource Group Ltd.
213 S. Mesa Street
Carlsbad, NM 88220

P 575.725.5001 ext 709
C 505.506.0040

www.vertex.ca

ATTACHMENT 5

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	6/3/2020
Site Location Name:	Fiddle Fee 24 28 23 TB 002H	Report Run Date:	6/4/2020 12:01 PM
Project Owner:	Melodie Sanjari	File (Project) #:	20E-00140
Project Manager:	Natalie Gordon	API #:	30-015-44540
Client Contact Name:	Isaac Castro	Reference	Spill - Produced Water
Client Contact Phone #:	(575) 988-0561		

Summary of Times

Left Office	6/3/2020 7:30 AM
Arrived at Site	6/3/2020 8:05 AM
Departed Site	
Returned to Office	

Summary of Daily Operations

11:40 Hydrovac lines within right of ways so excavation can begin and outline excavation area

16:48 All of hydrovac is complete and part of excavation was started. Guidance with titration was used to get the depth of excavation needed. Excavation will continue tomorrow with field screening to guide for depth again and side walls

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: West

Beginning of excavation near point of release

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	6/4/2020
Site Location Name:	Fiddle Fee 24 28 23 TB 002H	Report Run Date:	6/4/2020 11:48 PM
Project Owner:	Melodie Sanjari	File (Project) #:	20E-00140
Project Manager:	Natalie Gordon	API #:	30-015-44540
Client Contact Name:	Isaac Castro	Reference	Spill - Produced Water
Client Contact Phone #:	(575) 988-0561		

Summary of Times

Left Office	6/4/2020 5:25 AM
Arrived at Site	6/4/2020 6:02 AM
Departed Site	6/4/2020 4:59 PM
Returned to Office	

Summary of Daily Operations

6:02 Continue excavation with guidance of field screens

15:44 Get excavation complete before end of day guiding with field screens. Get ready to collect confirmation samples

15:49 On excavation most of the area went to the depth of 3 ft. On the east side in the middle a section was left at 2 ft

Next Steps & Recommendations

1 Collect confirmation samples

2 Await lab analysis

Daily Site Visit Report

Site Photos

Viewing Direction: South

Area of excavation near point of release where 3’ excavation is done

Viewing Direction: East

Area of excavation on north side where bs1 was collected and bs2 excavation goes from 3ft to 2 ft

Viewing Direction: East

South end of excavation at 3’

Viewing Direction: North

Area of excavation near oryx line on east side where it goes from 3’ to 2’ back to 3’

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: South
	
Excavation area where bs5 is located	Excavation area
Viewing Direction: West	**Viewing Direction**: East
	
Excavation area	Excavation area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

ATTACHMENT 6

Client Name: Marathon Oil Permian, LLC
Site Name: Fiddle Fee 24 28 23 WD #003H
NM OCD Incident Tracking Number: NRM2012240751
Project #: 20E-00140-004
Lab Reports: 2006369 and 663990

Table 2. Confirmatory Sampling Laboratory Results - Depth to Groundwater < 50 feet

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BG 20-01	1	June 4, 2020	-	-	-	-	-	-	-	2,020
BG 20-02	2	June 4, 2020	-	-	-	-	-	-	-	2,680
BS20-01	3	June 5, 2020	<0.024	<0.22	<4.9	<9.6	<48	<14.5	<62.5	360
BS20-02	2	June 5, 2020	<0.025	<0.222	<4.9	<9.4	<47	<14.3	<61.3	710
BS20-03	3	June 5, 2020	<0.025	<0.222	<4.9	<10	<50	<14.9	<64.9	250
BS20-04	2	June 5, 2020	<0.025	<0.222	<4.9	<8.5	<43	<13.4	<56.4	560
BS20-05	3	June 5, 2020	<0.025	<0.225	<5.0	<9.9	<49	<14.9	<63.9	530
WS20-01	0-3	June 5, 2020	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	310
WS20-02	0-2	June 5, 2020	<0.025	<0.222	<4.9	<9.4	<47	<14.3	<61.3	900
WS20-03	0-3	June 5, 2020	<0.025	<0.225	<5.0	<9.3	<46	<14.3	<60.3	650
WS20-04	0-2	June 5, 2020	<0.024	<0.22	<4.9	<8.8	<44	<13.7	<57.7	720
WS20-05	0-3	June 5, 2020	<0.025	<0.222	<4.9	<9.5	<48	<14.4	<62.4	400

"-" - Not applicable/assessed

Bold and shaded indicates exceedance outside of applied action level

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 08, 2020

Melodie Sanjari

Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Fiddle Fee 24 28 23 OrderNo.: 2005053

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 20 sample(s) on 5/2/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-01 0.5'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 10:50:00 AM
Lab ID: 2005053-001 **Matrix:** SOIL
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	5/5/2020 10:42:50 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/5/2020 10:42:50 AM
Surr: DNOP	98.6	55.1-146		%Rec	1	5/5/2020 10:42:50 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	8300	300		mg/Kg	100	5/7/2020 6:14:28 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 3:08:26 PM
Toluene	ND	0.049		mg/Kg	1	5/4/2020 3:08:26 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 3:08:26 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/4/2020 3:08:26 PM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%Rec	1	5/4/2020 3:08:26 PM
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	5/4/2020 3:08:26 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/4/2020 3:08:26 PM
Surr: Toluene-d8	98.4	70-130		%Rec	1	5/4/2020 3:08:26 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 3:08:26 PM
Surr: BFB	95.4	70-130		%Rec	1	5/4/2020 3:08:26 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-002 **Matrix:** SOIL

Client Sample ID: BH20-01 2'
Collection Date: 4/29/2020 11:00:00 AM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	8200	300		mg/Kg	100	5/7/2020 6:26:49 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-003 **Matrix:** SOIL

Client Sample ID: BH20-01 4'
Collection Date: 4/29/2020 11:10:00 AM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	5300	150		mg/Kg	50	5/7/2020 6:39:10 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-004 **Matrix:** SOIL

Client Sample ID: BH20-01 6'
Collection Date: 4/29/2020 11:20:00 AM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	6200	300		mg/Kg	100	5/7/2020 6:51:30 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-02 0.5'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 11:40:00 AM
Lab ID: 2005053-006 **Matrix:** SOIL
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/5/2020 11:06:44 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 11:06:44 AM
Surr: DNOP	102	55.1-146		%Rec	1	5/5/2020 11:06:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	3300	150		mg/Kg	50	5/7/2020 7:03:51 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 4:34:02 PM
Toluene	ND	0.050		mg/Kg	1	5/4/2020 4:34:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 4:34:02 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 4:34:02 PM
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	1	5/4/2020 4:34:02 PM
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	5/4/2020 4:34:02 PM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/4/2020 4:34:02 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	5/4/2020 4:34:02 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 4:34:02 PM
Surr: BFB	93.8	70-130		%Rec	1	5/4/2020 4:34:02 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-007 **Matrix:** SOIL

Client Sample ID: BH20-02 2'
Collection Date: 4/29/2020 11:50:00 AM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1400	60		mg/Kg	20	5/6/2020 6:11:17 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-008 **Matrix:** SOIL

Client Sample ID: BH20-02 4'
Collection Date: 4/29/2020 12:00:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	180	60		mg/Kg	20	5/6/2020 11:07:31 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-009 **Matrix:** SOIL

Client Sample ID: BH20-02 6'
Collection Date: 4/29/2020 12:10:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	200	59		mg/Kg	20	5/6/2020 11:44:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-03 0.5'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 12:30:00 PM
Lab ID: 2005053-011 **Matrix:** SOIL
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/5/2020 11:30:46 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/5/2020 11:30:46 AM
Surr: DNOP	103	55.1-146		%Rec	1	5/5/2020 11:30:46 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	3500	150		mg/Kg	50	5/7/2020 7:16:12 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 5:59:34 PM
Toluene	ND	0.049		mg/Kg	1	5/4/2020 5:59:34 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/4/2020 5:59:34 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 5:59:34 PM
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%Rec	1	5/4/2020 5:59:34 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	5/4/2020 5:59:34 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	5/4/2020 5:59:34 PM
Surr: Toluene-d8	96.5	70-130		%Rec	1	5/4/2020 5:59:34 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/4/2020 5:59:34 PM
Surr: BFB	94.6	70-130		%Rec	1	5/4/2020 5:59:34 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-012 **Matrix:** SOIL

Client Sample ID: BH20-03 2'
Collection Date: 4/29/2020 12:40:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	300	60		mg/Kg	20	5/7/2020 12:33:56 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-013 **Matrix:** SOIL

Client Sample ID: BH20-03 4'
Collection Date: 4/29/2020 12:50:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2400	60		mg/Kg	20	5/7/2020 12:46:16 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-014 **Matrix:** SOIL

Client Sample ID: BH20-03 6'
Collection Date: 4/29/2020 1:00:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2000	60		mg/Kg	20	5/7/2020 12:58:37 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-04 0.5'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 1:20:00 PM
Lab ID: 2005053-016 **Matrix:** SOIL
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/5/2020 11:54:45 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/5/2020 11:54:45 AM
Surr: DNOP	114	55.1-146		%Rec	1	5/5/2020 11:54:45 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1500	60		mg/Kg	20	5/7/2020 1:10:58 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	5/4/2020 6:28:04 PM
Toluene	ND	0.050		mg/Kg	1	5/4/2020 6:28:04 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/4/2020 6:28:04 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/4/2020 6:28:04 PM
Surr: 1,2-Dichloroethane-d4	90.6	70-130		%Rec	1	5/4/2020 6:28:04 PM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	5/4/2020 6:28:04 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	5/4/2020 6:28:04 PM
Surr: Toluene-d8	98.2	70-130		%Rec	1	5/4/2020 6:28:04 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/4/2020 6:28:04 PM
Surr: BFB	92.8	70-130		%Rec	1	5/4/2020 6:28:04 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-04 2'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 1:30:00 PM
Lab ID: 2005053-017 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1800	60		mg/Kg	20	5/7/2020 1:23:18 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-04 4'
Project: Fiddle Fee 24 28 23
Collection Date: 4/29/2020 1:40:00 PM
Lab ID: 2005053-018 **Matrix:** SOIL **Received Date:** 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	270	60		mg/Kg	20	5/7/2020 1:35:38 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2005053**
Date Reported: **5/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23
Lab ID: 2005053-019 **Matrix:** SOIL

Client Sample ID: BH20-04 6'
Collection Date: 4/29/2020 1:50:00 PM
Received Date: 5/2/2020 8:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	870	60		mg/Kg	20	5/7/2020 1:47:59 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005053**
08-May-20

Client: Marathon Oil Company
Project: Fiddle Fee 24 28 23

Sample ID: **MB-52301** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52301** RunNo: **68713**
Prep Date: **5/6/2020** Analysis Date: **5/6/2020** SeqNo: **2377545** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52301** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52301** RunNo: **68713**
Prep Date: **5/6/2020** Analysis Date: **5/6/2020** SeqNo: **2377546** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	90	110			

Sample ID: **MB-52317** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52317** RunNo: **68713**
Prep Date: **5/6/2020** Analysis Date: **5/6/2020** SeqNo: **2377596** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52317** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52317** RunNo: **68713**
Prep Date: **5/6/2020** Analysis Date: **5/6/2020** SeqNo: **2377597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005053**

08-May-20

Client: Marathon Oil Company

Project: Fiddle Fee 24 28 23

Sample ID: **MB-52242**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **52242**	RunNo: **68637**
Prep Date: **5/4/2020**	Analysis Date: **5/5/2020**	SeqNo: **2375356** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	55.1	146			

Sample ID: **LCS-52242**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **52242**	RunNo: **68637**
Prep Date: **5/4/2020**	Analysis Date: **5/5/2020**	SeqNo: **2375357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	70	130			
Surr: DNOP	5.3		5.000		107	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005053**
08-May-20

Client: Marathon Oil Company
Project: Fiddle Fee 24 28 23

Sample ID: **mb-52228** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.0	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.48		0.5000		97.0	70	130			

Sample ID: **lcs-52228** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.8	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Ethylbenzene	1.1	0.050	1.000	0	105	70	130			
Xylenes, Total	3.2	0.10	3.000	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.4	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.4	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: Toluene-d8	0.49		0.5000		97.5	70	130			

Sample ID: **2005053-001ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BH20-01 0.5'** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	0.9901	0	97.2	70	130			
Toluene	1.0	0.050	0.9901	0	104	70	130			
Ethylbenzene	1.1	0.050	0.9901	0	110	70	130			
Xylenes, Total	3.3	0.099	2.970	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	0.46		0.4950		93.3	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.4950		97.3	70	130			
Surr: Dibromofluoromethane	0.51		0.4950		104	70	130			
Surr: Toluene-d8	0.48		0.4950		97.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005053**
08-May-20

Client: Marathon Oil Company
Project: Fiddle Fee 24 28 23

Sample ID: **2005053-001amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BH20-01 0.5'** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375086** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9911	0	94.1	70	130	3.20	20	
Toluene	0.99	0.050	0.9911	0	99.5	70	130	3.85	20	
Ethylbenzene	1.1	0.050	0.9911	0	106	70	130	3.31	0	
Xylenes, Total	3.2	0.099	2.973	0	106	70	130	3.76	0	
Surr: 1,2-Dichloroethane-d4	0.46		0.4955		93.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.48		0.4955		97.1	70	130	0	0	
Surr: Dibromofluoromethane	0.52		0.4955		104	70	130	0	0	
Surr: Toluene-d8	0.48		0.4955		97.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005053**
08-May-20

Client: Marathon Oil Company
Project: Fiddle Fee 24 28 23

Sample ID: **mb-52228** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375104** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.9	70	130			

Sample ID: **lcs-52228** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375105** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.5	70	130			
Surr: BFB	480		500.0		96.8	70	130			

Sample ID: **2005053-006ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **BH20-02 0.5'** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375114** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.56	0	85.0	70	130			
Surr: BFB	470		491.2		96.0	70	130			

Sample ID: **2005053-006amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **BH20-02 0.5'** Batch ID: **52228** RunNo: **68629**
Prep Date: **5/2/2020** Analysis Date: **5/4/2020** SeqNo: **2375115** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.65	0	85.8	70	130	1.33	20	
Surr: BFB	470		493.1		95.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: MARATHON OIL COMPA Work Order Number: 2005053 RcptNo: 1

Received By: Juan Rojas 5/2/2020 8:25:00 AM

Completed By: Leah Baca 5/2/2020 9:09:06 AM

Reviewed By: JR 5/2/20

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Approved by client.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: LB 5/2/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good				
2	8.9	Good				

Chain-of-Custody Record

Client: Marathon

Melodie Sanjari

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day

☐ Standard ☐ **Rush**

Project Name: Fiddle Fee 24 28 23

Project #: 20E-00140

Project Manager: Natalie Gordon

Sampler: MJP/NR

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 5.7+0.1=5.8 (°C) 8.8+0.1=8.9

HEAL No. 2005053

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/29	10:50	Soil	BH20-01 0.5	402	ice	-001	✓	✓					✓			
	11:00		BH20-01 2			-002							✓			
	11:10		BH20-01 4			-003							✓			
	11:20		BH20-01 6			-004							✓			
	11:30		BH20-01 8			-005	PLEASE HOLD									
	11:40		BH20-02 0.5			-006	✓	✓					✓			
	11:50		BH20-02 2			-007							✓			
	12:00		BH20-02 4			-008							✓			
	12:10		BH20-02 6			-009							✓			
	12:20		BH20-02 8	Received empty 5/12/20 2oz Jar		-010	PLEASE HOLD									
	12:30		BH20-03 0.5			-011	✓	✓					✓			
	12:40		BH20-03 2			-012							✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/1/20	1400				5/1	1400
5/1	1900			courier	5-12-20	8:25

Remarks: Direct bill Marathon WBS #: CC: Natalie Gordon

Chain-of-Custody Record

Client: Marathon

Melodie Sanjari

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day

☑ Standard ☐ Rush

Project Name: Fiddle Fee 24 28 23

Project #: 20E-00140

Project Manager: Natalie Gordon

Sampler: MJP/NR

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 5.7+0.1=5.8 (°C) 8.8+0.1=8.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/29	12:50	Soil	BH20-03 4'	402	ice	2005053-013	✓	✓					✓			
	1:00		BH20-03 6			-014							✓			
	1:10		BH20-03 8'			-015	PLEASE HOLD									
	1:20		BH20-04 0.5			-016	✓	✓					✓			
	1:30		BH20-04 2			-017							✓			
	1:40		BH20-04 4			-018							✓			
	1:50		BH20-04 6			-019							✓			
↓	2:00	↓	BH20-04 8	↓	↓	-020	PLEASE HOLD									
													✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/1/20	1400				5/1	1400
5/1	1900			courier	5/2/20	6:25

Remarks: Direct bill Marathon

CC: Natalie Gordon

wbs #:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 10, 2020

Melodie Sanjari
Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Fiddle Fee 24 28 23 3H OrderNo.: 2006369

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 10 sample(s) on 6/6/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-001 **Matrix:** SOIL

Client Sample ID: BS20-01 3'
Collection Date: 6/5/2020 7:00:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/7/2020 1:53:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/7/2020 1:53:35 PM
Surr: DNOP	86.7	55.1-146		%Rec	1	6/7/2020 1:53:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 11:02:42 AM
Surr: BFB	83.2	66.6-105		%Rec	1	6/8/2020 11:02:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/8/2020 11:02:42 AM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 11:02:42 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 11:02:42 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/8/2020 11:02:42 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/8/2020 11:02:42 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	360	60		mg/Kg	20	6/8/2020 5:00:11 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-002 **Matrix:** SOIL

Client Sample ID: BS20-02 2'
Collection Date: 6/5/2020 7:15:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/7/2020 2:18:04 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/7/2020 2:18:04 PM
Surr: DNOP	88.2	55.1-146		%Rec	1	6/7/2020 2:18:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 12:13:19 PM
Surr: BFB	84.5	66.6-105		%Rec	1	6/8/2020 12:13:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 12:13:19 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 12:13:19 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 12:13:19 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/8/2020 12:13:19 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/8/2020 12:13:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	710	60		mg/Kg	20	6/8/2020 6:01:56 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-003 **Matrix:** SOIL

Client Sample ID: BS20-03 3'
Collection Date: 6/5/2020 7:30:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/7/2020 2:42:36 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/7/2020 2:42:36 PM
Surr: DNOP	79.1	55.1-146		%Rec	1	6/7/2020 2:42:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 1:23:57 PM
Surr: BFB	84.2	66.6-105		%Rec	1	6/8/2020 1:23:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 1:23:57 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 1:23:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 1:23:57 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/8/2020 1:23:57 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/8/2020 1:23:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	250	60		mg/Kg	20	6/8/2020 6:14:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-004 **Matrix:** SOIL

Client Sample ID: BS20-04 2'
Collection Date: 6/5/2020 7:45:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	6/7/2020 3:07:07 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/7/2020 3:07:07 PM
Surr: DNOP	94.0	55.1-146		%Rec	1	6/7/2020 3:07:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 1:48:03 PM
Surr: BFB	83.2	66.6-105		%Rec	1	6/8/2020 1:48:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 1:48:03 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 1:48:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 1:48:03 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/8/2020 1:48:03 PM
Surr: 4-Bromofluorobenzene	99.1	80-120		%Rec	1	6/8/2020 1:48:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	560	60		mg/Kg	20	6/8/2020 6:26:37 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-005 **Matrix:** SOIL

Client Sample ID: BS20-05 3'
Collection Date: 6/5/2020 8:00:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/7/2020 3:31:42 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/7/2020 3:31:42 PM
Surr: DNOP	83.6	55.1-146		%Rec	1	6/7/2020 3:31:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/8/2020 2:11:47 PM
Surr: BFB	82.1	66.6-105		%Rec	1	6/8/2020 2:11:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 2:11:47 PM
Toluene	ND	0.050		mg/Kg	1	6/8/2020 2:11:47 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/8/2020 2:11:47 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/8/2020 2:11:47 PM
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	6/8/2020 2:11:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	530	60		mg/Kg	20	6/8/2020 6:38:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-006 **Matrix:** SOIL

Client Sample ID: WS20-01 0-3'
Collection Date: 6/5/2020 8:15:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/7/2020 3:56:21 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/7/2020 3:56:21 PM
Surr: DNOP	85.4	55.1-146		%Rec	1	6/7/2020 3:56:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/8/2020 2:35:28 PM
Surr: BFB	83.6	66.6-105		%Rec	1	6/8/2020 2:35:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 2:35:28 PM
Toluene	ND	0.050		mg/Kg	1	6/8/2020 2:35:28 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/8/2020 2:35:28 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/8/2020 2:35:28 PM
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	6/8/2020 2:35:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	310	60		mg/Kg	20	6/8/2020 6:51:20 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-007 **Matrix:** SOIL

Client Sample ID: WS20-02 0-2'
Collection Date: 6/5/2020 8:30:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/7/2020 4:21:01 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/7/2020 4:21:01 PM
Surr: DNOP	90.2	55.1-146		%Rec	1	6/7/2020 4:21:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 2:59:11 PM
Surr: BFB	85.1	66.6-105		%Rec	1	6/8/2020 2:59:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 2:59:11 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 2:59:11 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 2:59:11 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/8/2020 2:59:11 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/8/2020 2:59:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	900	60		mg/Kg	20	6/8/2020 7:03:42 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-008 **Matrix:** SOIL

Client Sample ID: WS20-03 0-3'
Collection Date: 6/5/2020 8:45:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/7/2020 4:45:42 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/7/2020 4:45:42 PM
Surr: DNOP	83.5	55.1-146		%Rec	1	6/7/2020 4:45:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/8/2020 3:22:59 PM
Surr: BFB	84.5	66.6-105		%Rec	1	6/8/2020 3:22:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 3:22:59 PM
Toluene	ND	0.050		mg/Kg	1	6/8/2020 3:22:59 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/8/2020 3:22:59 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/8/2020 3:22:59 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/8/2020 3:22:59 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	650	60		mg/Kg	20	6/8/2020 7:16:03 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-009 **Matrix:** SOIL

Client Sample ID: WS20-04 0-2'
Collection Date: 6/5/2020 9:00:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	6/7/2020 5:10:21 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	6/7/2020 5:10:21 PM
Surr: DNOP	91.0	55.1-146		%Rec	1	6/7/2020 5:10:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 4:58:09 PM
Surr: BFB	86.0	66.6-105		%Rec	1	6/8/2020 4:58:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/8/2020 4:58:09 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 4:58:09 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 4:58:09 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/8/2020 4:58:09 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/8/2020 4:58:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	720	60		mg/Kg	20	6/8/2020 7:28:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2006369**
Date Reported: **6/10/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Fiddle Fee 24 28 23 3H
Lab ID: 2006369-010 **Matrix:** SOIL

Client Sample ID: WS20-05 0-3'
Collection Date: 6/5/2020 9:15:00 AM
Received Date: 6/6/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/8/2020 9:26:17 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/8/2020 9:26:17 AM
Surr: DNOP	87.6	55.1-146		%Rec	1	6/8/2020 9:26:17 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/8/2020 5:21:51 PM
Surr: BFB	84.8	66.6-105		%Rec	1	6/8/2020 5:21:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/8/2020 5:21:51 PM
Toluene	ND	0.049		mg/Kg	1	6/8/2020 5:21:51 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/8/2020 5:21:51 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/8/2020 5:21:51 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/8/2020 5:21:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	400	60		mg/Kg	20	6/8/2020 8:05:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006369**

10-Jun-20

Client: Marathon Oil Company

Project: Fiddle Fee 24 28 23 3H

Sample ID: **MB-52956**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **52956**	RunNo: **69485**
Prep Date: **6/8/2020**	Analysis Date: **6/8/2020**	SeqNo: **2411302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52956**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **52956**	RunNo: **69485**
Prep Date: **6/8/2020**	Analysis Date: **6/8/2020**	SeqNo: **2411303** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006369**

10-Jun-20

Client: Marathon Oil Company

Project: Fiddle Fee 24 28 23 3H

Sample ID: **MB-52930** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **52930** RunNo: **69453**

Prep Date: **6/6/2020** Analysis Date: **6/7/2020** SeqNo: **2409562** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	55.1	146			

Sample ID: **LCS-52930** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **52930** RunNo: **69453**

Prep Date: **6/6/2020** Analysis Date: **6/7/2020** SeqNo: **2409563** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	10	50.00	0	111	70	130			
Surr: DNOP	5.3		5.000		107	55.1	146			

Sample ID: **MB-52935** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **52935** RunNo: **69465**

Prep Date: **6/7/2020** Analysis Date: **6/8/2020** SeqNo: **2410165** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.9		10.00		79.0	55.1	146			

Sample ID: **LCS-52935** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **52935** RunNo: **69465**

Prep Date: **6/7/2020** Analysis Date: **6/8/2020** SeqNo: **2410166** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.0	70	130			
Surr: DNOP	3.9		5.000		77.4	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006369**

10-Jun-20

Client: Marathon Oil Company

Project: Fiddle Fee 24 28 23 3H

Sample ID: **mb-52929** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **52929** RunNo: **69482**

Prep Date: **6/6/2020** Analysis Date: **6/8/2020** SeqNo: **2410769** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		86.5	66.6	105			

Sample ID: **lcs-52929** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **52929** RunNo: **69482**

Prep Date: **6/6/2020** Analysis Date: **6/8/2020** SeqNo: **2410770** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.6	80	120			
Surr: BFB	950		1000		95.3	66.6	105			

Sample ID: **2006369-002ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **BS20-02 2'** Batch ID: **52929** RunNo: **69482**

Prep Date: **6/6/2020** Analysis Date: **6/8/2020** SeqNo: **2410782** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.56	0	86.5	80	120			
Surr: BFB	1400		982.3		147	66.6	105			S

Sample ID: **2006369-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **BS20-02 2'** Batch ID: **52929** RunNo: **69482**

Prep Date: **6/6/2020** Analysis Date: **6/8/2020** SeqNo: **2410783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.53	0	87.5	80	120	1.01	20	
Surr: BFB	920		981.4		93.9	66.6	105	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006369**

10-Jun-20

Client: Marathon Oil Company

Project: Fiddle Fee 24 28 23 3H

Sample ID: **mb-52929**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **52929**	RunNo: **69482**
Prep Date: **6/6/2020**	Analysis Date: **6/8/2020**	SeqNo: **2410800** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID: **LCS-52929**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **52929**	RunNo: **69482**
Prep Date: **6/6/2020**	Analysis Date: **6/8/2020**	SeqNo: **2410801** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.6	80	120			
Toluene	0.95	0.050	1.000	0	94.7	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.9	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.6	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **2006369-001ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-01 3'**	Batch ID: **52929**	RunNo: **69482**
Prep Date: **6/6/2020**	Analysis Date: **6/8/2020**	SeqNo: **2410812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	0.9901	0	90.6	78.5	119			
Toluene	0.92	0.050	0.9901	0	93.4	75.7	123			
Ethylbenzene	0.95	0.050	0.9901	0	95.5	74.3	126			
Xylenes, Total	2.8	0.099	2.970	0	95.2	72.9	130			
Surr: 4-Bromofluorobenzene	1.0		0.9901		105	80	120			

Sample ID: **2006369-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-01 3'**	Batch ID: **52929**	RunNo: **69482**
Prep Date: **6/6/2020**	Analysis Date: **6/8/2020**	SeqNo: **2410813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9862	0	94.8	78.5	119	4.09	20	
Toluene	0.98	0.049	0.9862	0	99.2	75.7	123	5.61	20	
Ethylbenzene	0.98	0.049	0.9862	0	99.6	74.3	126	3.85	20	
Xylenes, Total	3.0	0.099	2.959	0	101	72.9	130	5.11	20	
Surr: 4-Bromofluorobenzene	1.0		0.9862		105	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON OIL COMPA** Work Order Number: **2006369** RcptNo: **1**

Received By: **Desiree Dominguez** **6/6/2020 9:00:00 AM** DD

Completed By: **Desiree Dominguez** **6/6/2020 9:14:58 AM** DD

Reviewed By: DF 6/6/2020

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: DAD 6/6/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Not Present			

Chain-of-Custody Record

Client: Marathon
Melodie Sanjari
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
Data Due 6/9 48 HR
☐ Standard ☑ Rush

Project Name:
Fiddle Fee 24 2823 #3H

Project #:
20E-0040

Project Manager:
Natalie Gordon

Sampler: MJP
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 2.8+0.2=3.0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006369	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/5	7:00	Soil	BS20-01 3'	4oz	ice	-001	✓	✓					✓			
	7:15		BS20-02 2'			-002	✓	✓					✓			
	7:30		BS20-03 3'			-003	✓	✓					✓			
	7:45		BS20-04 2'			-004	✓	✓					✓			
	8:00		BS20-05 3'			-005	✓	✓					✓			
	8:15		WS20-01 0-3'			-006	✓	✓					✓			
	8:30		WS20-02 0-2'			-007	✓	✓					✓			
	8:45		WS20-03 0-3'			-008	✓	✓					✓			
	9:00		WS20-04 0-2'			-009	✓	✓					✓			
	9:15		WS20-05 0-3'			-010	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/5/20	1300				6/5/20	1300
6/5/20	1900			Courier	6/16/20	9:00

Remarks: CC: Natalie Gordon & Melodie Sanjari:
Please Provide data on 6/9 (see Andy)
WBS #: TA.20.01039

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Certificate of Analysis Summary 663990

Marathon Oil Company, Tulsa, OK

Project Name: Fiddle Fee 24 28 23 3H

Project Id: TA.20.01039.001
Contact: Melodie Sanjari
Project Location:

Date Received in Lab: Wed 06.10.2020 10:50
Report Date: 06.11.2020 09:23
Project Manager: Jessica Kramer

Analysis Requested							
	Lab Id:	663990-001	663990-002				
	Field Id:	BG20-01, 1'	BG20-01, 2'				
	Depth:	1- ft	2- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	06.04.2020 08:15	06.04.2020 08:25				
Chloride by EPA 300 **SUB: T104704400-19-19**	***Extracted:***	06.10.2020 13:44	06.10.2020 13:44				
	Analyzed:	06.10.2020 15:38	06.10.2020 15:59				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		2020 X 99.8	2680 101				

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Manager

Analytical Report 663990

for

Marathon Oil Company

Project Manager: Melodie Sanjari

Fiddle Fee 24 28 23 3H

TA.20.01039.001

06.11.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

06.11.2020

Project Manager: **Melodie Sanjari**
Marathon Oil Company
P. O. Box 22164
Tulsa, OK 74121-2164

Reference: XENCO Report No(s): **663990**
Fiddle Fee 24 28 23 3H
Project Address:

Melodie Sanjari:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 663990. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 663990 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 663990

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 3H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BG20-01, 1'	S	06.04.2020 08:15	1 ft	663990-001
BG20-01, 2'	S	06.04.2020 08:25	2 ft	663990-002

CASE NARRATIVE

Client Name: Marathon Oil Company

Project Name: Fiddle Fee 24 28 23 3H

Project ID: *TA.20.01039.001*
Work Order Number(s): *663990*

Report Date: *06.11.2020*
Date Received: *06.10.2020*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3128567 Chloride by EPA 300

Lab Sample ID 663990-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 663990-001, -002.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 663990

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 3H

Sample Id:	**BG20-01, 1'**	Matrix:	Soil	Date Received:	06.10.2020 10:50
Lab Sample Id:	663990-001	Date Collected:	06.04.2020 08:15	Sample Depth:	1 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	06.10.2020 13:44	Basis:	Wet Weight
Seq Number:	3128567			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2020**	99.8	mg/kg	06.10.2020 15:38	X	10

Certificate of Analytical Results 663990

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 3H

Sample Id:	**BG20-01, 2'**	Matrix:	Soil	Date Received:	06.10.2020 10:50
Lab Sample Id:	663990-002	Date Collected:	06.04.2020 08:25	Sample Depth:	2 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	06.10.2020 13:44	Basis:	Wet Weight
Seq Number:	3128567			SUB:	T104704400-19-19

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2680**	101	mg/kg	06.10.2020 15:59		10

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

QC Summary 663990

Marathon Oil Company

Fiddle Fee 24 28 23 3H

Analytical Method: **Chloride by EPA 300** Prep Method: E300P

Seq Number: 3128567 Matrix: Solid Date Prep: 06.10.2020

MB Sample Id: 7705194-1-BLK LCS Sample Id: 7705194-1-BKS LCSD Sample Id: 7705194-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	252	101	254	102	90-110	1	20	mg/kg	06.10.2020 15:23	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P

Seq Number: 3128567 Matrix: Soil Date Prep: 06.10.2020

Parent Sample Id: 663990-001 MS Sample Id: 663990-001 S MSD Sample Id: 663990-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2020	201	2200	90	2200	89	90-110	0	20	mg/kg	06.10.2020 15:45	X

MS/MSD Percent Recovery [D] = 100*(C-A) / B

Relative Percent Difference RPD = 200* | (C-E) / (C+E) |

LCS/LCSD Recovery [D] = 100 * (C) / [B]

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample

A = Parent Result

C = MS/LCS Result

E = MSD/LCSD Result

MS = Matrix Spike

B = Spike Added

D = MSD/LCSD % Rec

Chain of Custody

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432) 704-5440 EL Paso,TX (915) 585-3443 Lubbock,TX (806) 794-1296 Crasbad, NM (432) 704-5440
Phoenix,AZ (480) 355-0900 Atlanta,GA (770) 449-8800 Tampa,FL (813) 620-2000 West Palm Beach, FL (561) 689-6701 www.xenco.com

Work Order No: 466e3990

Page 1 of 1

Project Manager:	Melodie Sanjari	Bill to: (if different)	
Company Name:	Marathon Oil	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:	Email:		

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Fiddle Fee 24 28 23 3H	Turn Around	
Project Number:	TA.20.01039.001	Routine ☐	
Project Location		Rush: ASAP	
Sampler's Name:	MJP	Due Date:	
PO #:	Quote #:		

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	Yes (No)
Temperature (°C):	23.0	Thermometer ID	
Received Intact:	(Yes) No	T-NM-007	
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	2

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Pres. Code	MJP
	BG20-01 1'	Soil	6/4	8:15	1'			✓
	BG20-01 2'	Soil	6/4	8:25	2'			✓

ANALYSIS REQUEST

Preservative Codes

MeOH: Me
None: NO
HNO3: HN
H2S04: H2
HCL: HL
NaOH: Na
Zn Acetate+ NaOH: Zn

TAT starts the day recevied by the lab, if received by 4:00pm

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		6/10/20 10:50	2		
			4		
			6		

Revised Date 022819 Rev. 2019.1